

75. (New) An apparatus for conducting a microfluidic process, said apparatus comprising:

- (a) a first plate comprising an array of sample access ports adapted for receiving a plurality of samples from an array of sample containers and dispensing said samples; and,
- (b) a second plate integral with said first plate for receiving said dispensed samples, said second plate comprising a planar array of microfluidic networks of cavity structures and channels for conducting a microfluidic process.

76. (New) An apparatus for conducting a microfluidic process, said apparatus comprising:

- (a) a first plate comprising an array of sample access ports adapted for receiving a plurality of samples from an array of sample wells; and,
- (b) a second plate integral with said first plate, said second plate comprising a planar array of microfluidic networks of cavity structures and channels for conducting a microfluidic process wherein each of said microfluidic networks is adapted for fluid communication with a corresponding sample access port of said first plate.

77. (New) The apparatus of claim 76, wherein each of said sample access ports comprises a reservoir or channel that is in fluid communication with a corresponding capillary adapted to receive samples from one of said sample wells.

78. (New) The apparatus of claim 76, wherein said array of sample wells conforms to the format of a 96, 192, 384, or 1536 well plate.

79. (New) The apparatus of claim 76, wherein each of said microfluidic network comprises:

- (a) a sample receiving cavity structure adapted for receiving sample from said corresponding sample access port; and,

- (b) one or more additional cavity structures in fluid communication with said sample receiving cavity structure.

80. (New) The apparatus of claim 76, wherein each of said microfluidic networks comprises:

- (a) a sample receiving cavity structure adapted for receiving sample from said corresponding sample access port;
(b) one or more waste cavity structures in fluid communication with said sample receiving cavity structure; and,
(c) one or more buffer containing structures in fluid communication with said sample receiving cavity structure.

81. (New) The apparatus of claim 78, wherein each of said microfluidic networks of cavity structures and channels comprises a tortuous path.

82. (New) A kit comprising in packaged combination:

- (a) the apparatus of claim 75; and,
(b) reagents, other than reagents within said apparatus, for processing a sample.

83. (New) A method for processing an array of samples, said method comprising:

- (a) simultaneously transferring at least a portion of each sample in an array of sample wells to a corresponding array of sample access ports that are part of a first plate comprising an array of sample access ports adapted for receiving a plurality of samples from an array of sample wells,
(b) simultaneously transferring at least a portion of each sample from said sample access ports to a corresponding array of microfluidic networks that is a part of a second plate integral with said first plate, said second plate comprising a planar array of microfluidic networks of cavity structures and channels for conducting a microfluidic process wherein each of said

microfluidic networks is adapted for fluid communication with a corresponding sample access port, and

- (c) processing said array of samples.

84. (New) The method of claim 83, wherein said processing comprises conducting an analysis of said samples.

85. (New) The method of claim 83, wherein said processing comprises conducting a chemical synthesis.

86. (New) The method of claim 83, wherein each of said sample access ports comprises a reservoir or channel that is in fluid communication with a corresponding capillary adapted to receive samples from one of said sample wells.

87. (New) The method of claim 83, wherein said array of sample wells conforms to the format of a 96, 192, 384, or 1536 well plate.

88. (New) The method of claim 83, wherein each of said microfluidic networks comprises: (a) a sample receiving cavity structure adapted for receiving sample from said corresponding sample access port; and, (b) one or more additional cavity structure in fluid communication with said sample receiving cavity structure.

89. (New). The method of claim 83, wherein each of said microfluidic networks comprises: (a) a sample receiving cavity structure adapted for receiving sample from said corresponding sample access port; (b) one or more waste cavity structures in fluid communication with said sample receiving cavity structure; and, (c) one or more buffer containing structures in fluid communication with said sample receiving cavity structure.

90. (New) The method of claim 83, wherein each of said microfluidic networks of interconnected cavity structures and channels of capillary dimension comprises a tortuous path.